DEVELOPMENT PARENTAL SUPERVISION APPLICATION FOR PARENTS SUPERVISE OF CHILD BASED ON ANDROID

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ABSTRAK

Parents should provide the best for their child, start from the healthy food, education, and even a sense of security. Parental guidance and monitoring is one of main factors, more grown up child ,more large intercommunication and busyness of parents make the lack of control against child, it is becoming a problem because delinquency the higher lately is which makes the need to make greater efforts to supervise their child

Based on that, it can be concluded that to build of software that can help the problems of the parent and child which has been described previously. Parental Supervision is a software that runs on a mobile device that is easy to be accessed and carry anywhere. The software is built using object-based modeling. Parental Supervision built into two applications namely Parental Supervision parent for *users parents and Parental Supervise child for users child.*

Based on test using aplha and beta testing can be concluded that the software Parental Supervision has helped parents to supervision child using the android *platform although interrupted - between busy parents.*

Keywords : *Parental Supervision, Supervision, Platform,* Android.

1. INTRODUCTION

Development of smartphones is growing rapidly in Indonesia, the growth of smartphones in Indonesia in 2015 reached 70% compared with the previous period. Based on these reports, it turns out Android is an operating system that dominates the circulation of smartphones in Indonesia with a market share of 59.91%. And internet users in Indonesia reached 58.4% on average at the age of 12 to 34 years [1].

According to the results interview with Dr. Febby Syarifah as coordinator of counseling (BK) SMAN 12 Bandung, in getting a class XI student who is absent without excuse on 21 September 2015 as many as 27 students. Usually when a child is sick or can not attend school permit parents give the news to the school by mail or phone. This becomes a problem that needs to be considered by parents, where parents do not know whether their children are at school or during school hours in progress.

Based on the results of interviews with 20 parents of children with the parents gained 16 percentage 86.67% stated that they did not know the position of children when they are outside the home and this is because parents can not always follow her child when outside a home environment due to busy parents.

According to information from the police as much as 67 percent of the victims of traffic accidents are in the productive age, ie 17-50 years. There are about 400,000 victims under the age of 25 years who died on the highway, with an average mortality rate of 1,000 children and adolescents every day, and the cause is due to negligence riders themselves. Parents see that data are always reminded about safety in driving, but the parents can not know how his speed when driving a motor vehicle [2].

Indonesian is not a surprise to be champions porn site traffic, especially coming from the android-based mobile phone technology, Indonesia is second to world affairs pornography. According to data on teens who get a lot of open pornographic sites, this is caused because the teen was puberty and adolescence has a high curiosity that teens tend to seek the information themselves through their gadgets. It becomes difficult parents to restrict access to sites in the negative berkonten smartphone [3].

1.1 Identification of Problems

Based on the background of the problems presented above, this research can be identified as follows:

1. Difficulty parents know the whereabouts of children in school during school hours in progress..
2. Difficulty parents know the position of the child when outside a home environment.
3. Difficulty parents know when a child driving speed using a motor vehicle.

4. Difficulty parents restrict access content website negatively on child Smartphone

1.2 Purpose and Objectives

The objectives to be achieved in this study are:

1. Ease parents know the whereabouts of children in school during school hours in progress.
2. Make it easy for parents to know when the your child location is far out of a home environment.
3. Make it easy for parents to know the speed of the child when driving a motor vehicle.
4. Make it easy for parents to restrict access to websites negative content

1.2 *Supervision*

Supervision literally means supervision, and according to Indonesian big dictionary has meaning to see or pay attention to a person's behavior. Definition of supervision or oversight in this case is the activity to determine the child's activities via smartphones owned parent [4].

1.3 *Tracking*

Tracking literally means to follow the road, or in the sense of free is an activity to track an object. Definition of tracking or monitoring activities in this regard is to monitor the whereabouts of the child based on the position of the smartphone get [5].

1.4 Application

In terms notion application is a program that is ready for use that is made to implement the function for user applications as well as the use of other applications that can be used by a target that will be addressed. According to the executive computer dictionary, the application has the meaning that is solving the problem using one of the techniques of data processing applications are usually raced on a komputansi desired or expected and processing of data that is expected.

Understanding the application according to Big Indonesian Dictionary, "Application is the application of a system designed to process data using rules or provisions of a specific programming language"

1.5 *Global Positioning System* (GPS)

GPS stands for Global Positioning System, a navigation system using satellite technology that can receive signals from the satellite. This system uses 24 satellites that transmit microwave signals to Earth. This signal is received by a receiver (receiver) on the surface, where the GPS receiver will collect information from GPS satellites

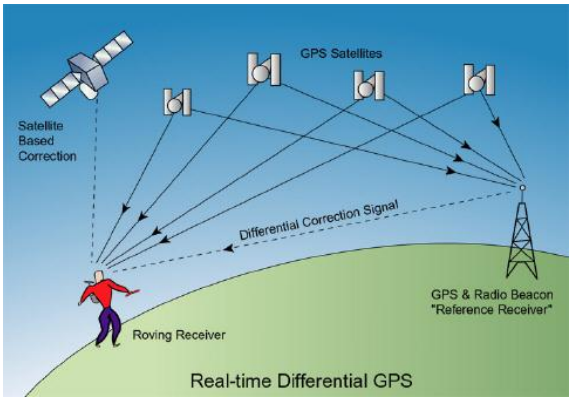


Figure 1 Example *Global Positioning System* (GPS)

1.6 Introduction Android Operation System

Android (operating system) - Android OS - This is a Linux-based operating system for mobile phones such as smart phones and tablet computers. Android provides an open platform for developers to create their own applications for use by a variety of mobile devices. [6]

1.6.1 History of Android

Android is an operating system Linux-based mobile devices that covers operating systems, middleware and applications. Android provides an open platform for developers to create their applications.

Initially, Google Inc. bought Android Inc. which is the newcomers who make software for mobile phones or smartphones. Then to develop Android, formed the Open Handset Alliance, a consortium of 34 companies for hardware, software, and telecommunications, including Google, HTC, Intel, Motorola, Qualcomm, T-Mobile, and Nvidia. [10]

At the inaugural release of Android, 5 November 2007, along with the Open Handset Alliance Android states support the development of open source on mobile devices. On the other hand, Google released the Android code under the Apache license, a software licensing and open-platform mobile devices.

1.7 Software Support

Here is the software support in supporting the development of applications that will be built.

1.7.1 Android Studio

Android Studio is an IDE (Integrated Development Environment) for the official Android application development and open source or free. The studio announced the launch of Android by Google on 16 May 2013 at the event Google I / O Conference for 2013. Since then, Android Studio Eclipse as an IDE replace official to develop Android applications.



Figure 2 Android Studio

Android studio itself was developed based on IntelliJ IDEA is similar to the Eclipse plugin accompanied by ADT (Android Development Tools). Android studio features:

a. Projects based on Gradle Build
b. Refactory and bugs fixed fast
c. New tool named "Lint" dikalim can monitor the speed, usability, and kompetibelitas applications quickly.
d. And Proguard support App-signing for security.
e. Have a GUI application easier android
f. Powered by Google Cloud Platform for any application developed.

1.7.2 *Java Development Kit* (JDK)

Java Development Kit (JDK) is a collection of software that you can use to develop software based on Java, while the JRE is an implementation of the Java Virtual Machine that is actually used to run Java programs. Baisanya, each containing one or more JDK JRE and various other development tools such as java compiler source, bundling, debuggers, development libraries, etc.

1.7.3 *Web Service*

Web service is a set of application logic and its objects and methods it has, which is located on a server connected to the Internet so it can be accessed using the HTTP protocol and SOAP (Simple Object Access protocl). In use, the web service can be used only to check the user data that is logged on to a website or to be used in online banking transactions are complicated.

The goal of this technology is to facilitate some applications komponenya to connect with other applications within an organization and outside the organization using a standard which is not bound platform (platform-neutral) and is not bound to be the programming language used. This can occur because the XML standard that is supported by many large companies in the world, which is used to exchange data. Other than that, the use of SOAP into methods of objects that exist in a web service can be accessed from other applications such as the application to access the local method.

1.7.4 *Java Script Object Nonation* (JSON)

JSON (JavaScript Object Notation) is a lightweight data interchange format, easily read and written by humans, and easily translated and made (generated) by the computer. This format is based on part of the Programming Language JavaScript, Standard ECMA-262 3rd Edition - December 1999. JSON is a text format that is independent of the programming language whatsoever for using a style commonly used by programmers family C including C, C ++, C # , Java, JavaScript, Perl, Python etc. Because of these properties, making it ideal as a language JSON data exchange [JSON] [7].

JSON is made of two structures:

a) set of name / value pairs. In some languages, this is stated as an object (object), record (record), structure (struct), dictionary (dictionary), the hash table (hash table), keyed list (keyed list), or associative array.

b) List value (an ordered list of values). In most languages, this is expressed as an array (array), vector (vector), lists (list), or sequences (sequences).

1.7.5 Google *Cloud Messaging* API

Google Cloud Messaging (GCM) for android is a service that helps developers to send data from the server to their android application to other android devices. It could be a short message to tell the android application that new data will be retrieved from the server (for example, the film uploaded by a friend), or it could be a message that contains up to 4KB of data payload (so that applications such as instant messaging can receive direct messages) [8].

GCM services handle all aspects of a message queue and delivery to the target application, and runs on the target device. GCM allows android application to send a message to the server for broadcasting a notification to all existing clients. Only requires a Gmail account it will immediately be able to use the facilities in GCM.

1.7.6 Google *Geocoding* API

Geocoding is the process of converting addresses into geographic coordinates obtained an address (1600 Amphitheatre Mountain View, CA) and converted into latitude 37.423021 longitude coordinates - 122.083739, which can be used to place a marker on the map or the map position. The reverse geocoding is the opposite of geocoding is the conversion of coordinates into an address that allows to find an address



Figure 3 Google Geocoding dan Reverse Geoconding API

1.7.7 Google *Maps* API

Google Maps is a service from Google that makes it easy for users to perform mapping capability for applications that are created. While google maps API allows development to integrate Google Maps into web sites. By using Google Maps Api makes it possible to embed Google Maps site into an external website, where site specific data can be overlaid [11].



Figure 4 Google *Maps*

Although initially only a javascript API, Maps API has since expanded to include an API for Adobe Flash applications, service status maps to take pictures, and web services to perform geocoding, generating driving directions, and get the elevation profile.

2. CONTENT OF RESEARCH

2.1 System Analysis

Parental supervision application on your Android Smartphone is an application used as parental supervision of child. This application can determine where the presence of children at school when the school day lasts, know the whereabouts of the child when they go outside the home environment, knowing the speed of driving children when using motor vehicles, restricting access content website negatively on Smartphone child and lock smartphones child when a phone call from a parent in ignore. This application allows parents to know their children anywhere because the application is connected to the Internet.

2.2 Flow System

flow to describe a set of objects that have a relationship between them.

2.2.1 Child Tracking and Measuring Vehicle Speed System Flow

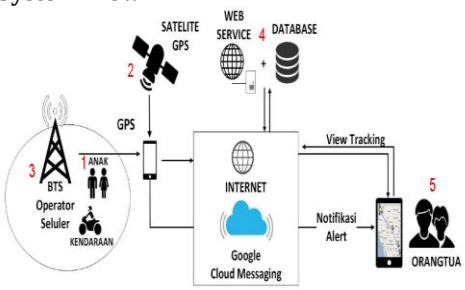


Figure 5 *Tracking* and Measure *Speed Parental Supervision Child*

2.2.2 Flow System Geofencing Flow

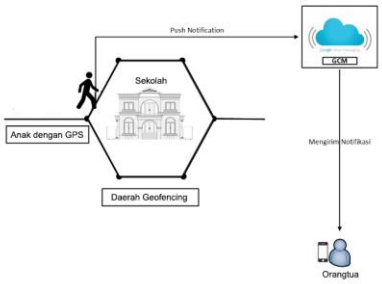


Figure 6 *Geofencing* School *Parental Supervision*

2.2.3 Block Site System Flow

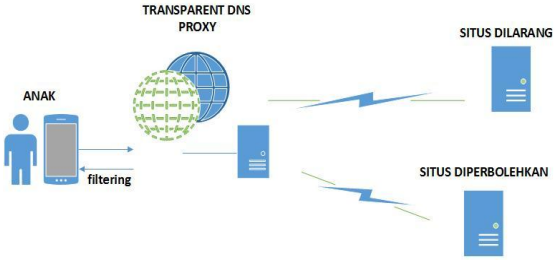


Figure 7 Block Site *Parental Supervision*

2.3 Bussiness Process Analysis

Analysis of business rules explain about problems that often occur in the parent and child, and business rules proposed for parents and child are:

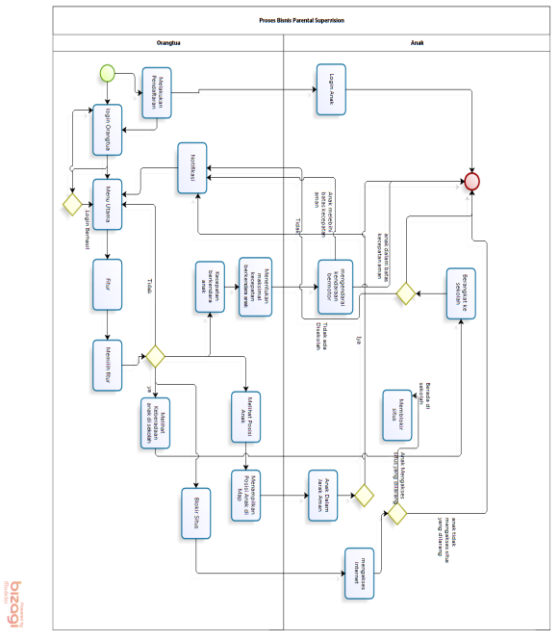


Figure 8 Business process *Parental Supervision*

2.4 Business Process Analysis System

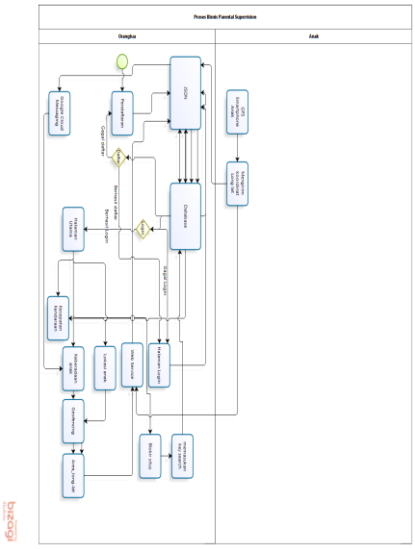


Figure 9 Business Process *Parental Supervision* System

2.5 Principles of Positioning with GPS

Positioning on the GPS is to use the distance calculation. The distance in question is the distance between the user and the GPS satellites. This distance can be obtained after a long travel time from the GPS signals sent by satellite began to be accepted by the GPS receiver is known. While the speed of the GPS signal is equivalent to the speed of light, which is 3x105 km / s. With mathematical equation s = VXT, where s = distance, v = velocity signal (equivalent to the speed of light c = 3 x 105 km / s), and t = time, then the distance between the user and the GPS satellites can be known.

2.5 Analiysis of Relation Scheme

The following is an analysis of the relation scheme on child tracker application.

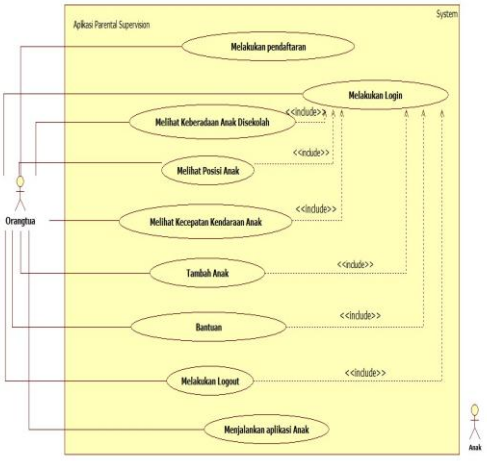


Figure 9 *Usecase* Application Parent and Child

2.6 Analysis of Relation Scheme

The following is an analysis of the relation scheme on Parental Supervision Application.

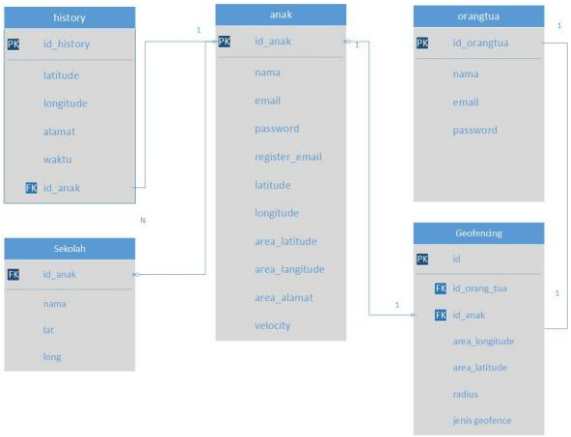


Figure 10 Relation Scheme

2.7 Hardware Implementation

Tabel 1 Hardware Spesifications Smartphones

No	Perangkat Keras	Spesifikasi
1	Dimensi layar	5.0 inches
2	RAM	2GB
3	Memory Internal	16GB
4	Processor	Dual-core 2GHz
5	Resolusi	720x1280 pixels
6	Sistem Operasi	Kitkat 4.4
7	Jaringan	2G : GSM 850 / 900 / 1800 / 1900 3G : HSDPA 850 / 900 / 1900 / 2100
8	A-GPS	standar
9	WLAN	Wi-Fi 802.11 b/g/n, Wi-Fi

No	Perangkat Keras	Spesifikasi
		Direct, hotspot

2.8 Software Implementation

Tabel Spesification Software Smartphone

No	Perangkat Lunak	Spesifikasi
1	Sistem Operasi	Windows 7
2	Web service	Sublime Text 2
3	Database	Php MyAdmin
4	Android	Android Studio
5	Sistem Operasi Android	Jelly Bean (4.2.2), API 14

2.9 Interface Implementation

This is a parental supervision application interface implementation.

1. Implementation of Parental Supervision interface - parent

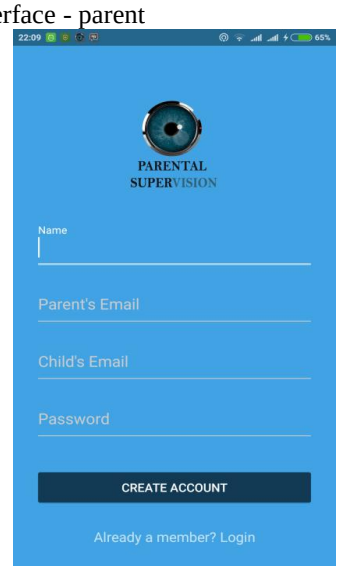


Figure 11 Register Parental Supervision Parent

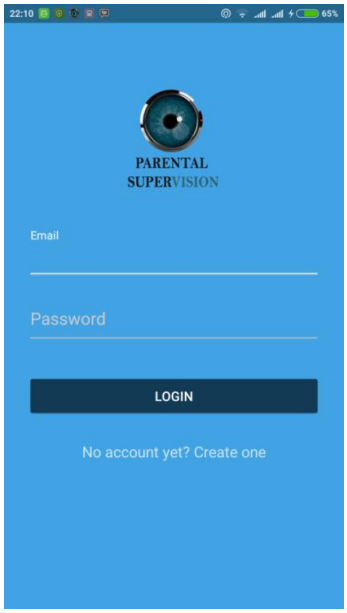


Figure 12 *Login Parental Supervision* Parent

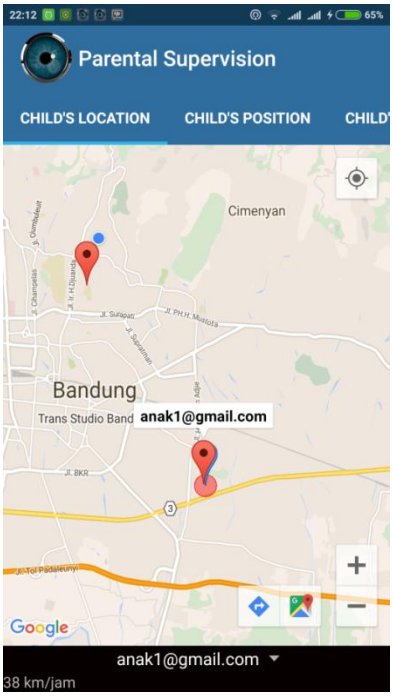


Figure 13 Main Page *Parental Supervision* Parent

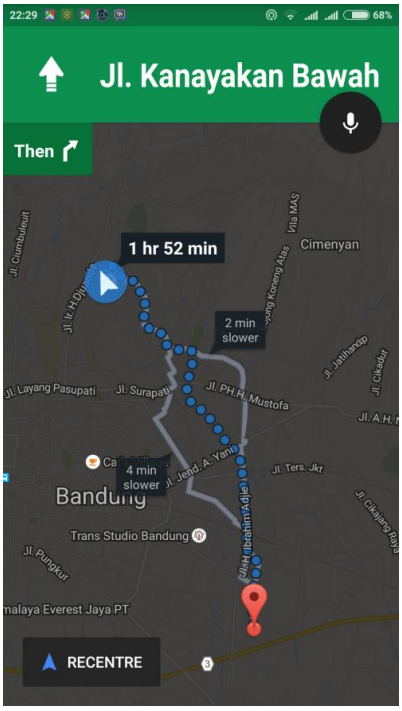


Figure 14 Page Viewing Distance and Tracking Speed

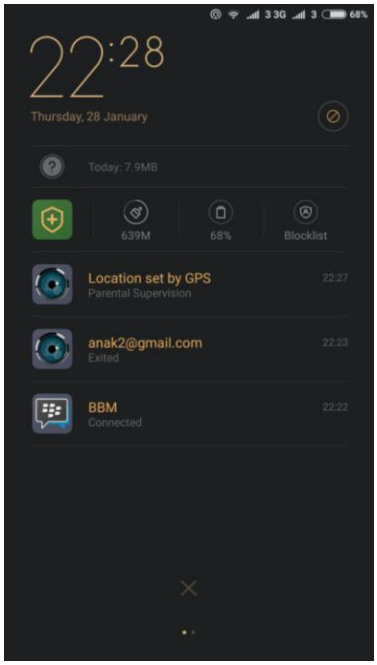


Figure 15 Page View Notification

2. Implementation Interface *Parental Supervision* Child



Figure 16 Page Running Application Parental Supervision Child

2.10 Examination

Here are the results of testing of the software development,

1. Evaluation of the results of functional testing is done it can be concluded that mobile systems are built has been running as expected both in terms of process validation and error handling.

2. Evaluation of the questionnaire testing Based on the test results of questionnaires that have been carried out, then the conclusion:

Tabel 3 3 Evaluation of Keusioner App Parents

No	Objectives	Evaluation Results
1	help you in monitoring child across distances	Assist
2	help you find your child is in school during school hours in progress	Assist
3	helps you find your child location easily when outside a home environment	Assist
4	help you know the speed of the vehicle when the child drive	Assist

3. CLOSING

Based on the results of the discussion that has been described in previous chapters, the authors can draw the following conclusion:

1. With the existence of Parental Supervision application on android platform, parents can easily find out where the child at school or during school hours in progress.
2. With the existence of Parental Supervision application on android platform helps parents to know the location of the child when the child is outside a home environment.
3. With the application of parental supervision on android platform parents can know the speed of the child when using a motor vehicle.
4. Features Blocking sites is not achieved because of some difficulties regarding the confidentiality of parental monitoring and the lack of working relationships with providers that are available in Indonesia as a service provider.

As for suggestions for the development of Parental Supervision software are as follows:

1. Adding other features during handling if the application Parental Supervision was no internet but can still send the location to a parent.
2. Add features to restrict the site that should not be accessed by smartphone child through parental smartphone
3. Develop a platform that can be supported by the software since currently only supports the android platform

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